CLAIMS

What is claimed is:

1. A method of forming a coating for a medical device carrying an agent, comprising:

applying a first composition including a polymer to at least a portion of a medical device to form a first coating, said polymer having a solubility parameter not greater than approximately 11.5 $(cal/cm^3)^{1/2}$, and

wherein said first coating reduces the rate of release of said agent from said medical device.

2. A coating for a medical device produced in accordance with the method of Claim 1.

3. The method of Claim 1, wherein said medical device is a balloon expandable stent, a self-expandable stent, a stent-graft, or a graft.

4. The method of Claim 1, wherein said medical device is a metallic stent having cavities containing said agent for the release of said agent subsequent to the implantation of said stent in a mammalian lumen, and wherein said first coating is formed on the surface of said metallic stent and covering said cavities.

5. The method of Claim 1, wherein said agent is a polar substance.

6. The method of Claim 1, wherein said first coating is hydrophobic, and wherein said agent is a polar substance.

7. The method of Claim 1, wherein said first composition additionally includes a solvent capable of dissolving said polymer, said method additionally comprising evaporating said solvent to form said first coating.

8. The method of Claim 7, wherein said solvent is non-polar and capable of dissolving said polymer.

9. The method of Claim 7, wherein said solvent is non-polar and capable of dissolving the polymer but not the agent.

10. The method of Claim 1, wherein said agent is selected from a group of actinomycin D, docetaxel, paclitaxel, and rapamycin.

11. The method of Claim 1, wherein said polymer has an equilibrium water absorption factor of less than about 5% by weight under physiologic conditions.

12. The method of Claim 1, additionally comprising prior to said applying a first composition:

(a) applying a second composition including a solvent and a polymer to the surface of said medical device;

(b) evaporating said solvent of said second composition to form a second coating on the surface of said medical device;

(c) applying a third composition including a solvent, a polymer, and an agent on said second coating; and

(d) evaporating said solvent of said third composition to form a third coating containing said agent in said second coating,

wherein said first coating reduces the rate of release of said agent.

13. The method of Claim 1, additionally comprising prior to said applying a first composition:

(a) applying a second composition including a solvent, a polymer, and an agent to the surface of said medical device; and

(b) evaporating said solvent of said second composition to form a second coating containing said agent on the surface of said medical device,

wherein said first coating reduces the rate of release of said agent.

14. The method of Claim 1, wherein said polymer has a solubility parameter not greater than approximately 10 $(cal/cm^3)^{1/2}$.

15. The method of Claim 1, wherein said polymer has a solubility parameter not greater than approximately 8.5 $(cal/cm^3)^{1/2}$.

16. A composition for forming a coating on a medical device comprising:

(a) a solvent; and

(b) a hydrophobic polymer dissolved in said solvent, wherein said polymer has an equilibrium water absorption factor of less than about 5% by weight by weight under physiological conditions.

17. The composition of Claim 16, wherein said solvent is non-polar and capable of dissolving said polymer.

18. A polymeric coating produced by the evaporation of said solvent from said composition of Claim 16.

19. The composition of Claim 16, wherein said polymer is selected from a group of polytetrafluoroethylene, perfluoro elastomers, fluoropolymers, ethylene-tetrafluoroethylene copolymer, fluoroethylene-alkyl vinyl ether copolymer, polyhexafluoropropylene, low density linear polyethylenes having high molecular weights, ethylene-olefin copolymers, atactic polypropylene, polyisobutene, polybutylenes, styrene-ethylene-styrene block copolymers, styrene-butylene-styrene block copolymers, styrene-ethylene/butlene-styrene block

copolymers, styrene-butadiene-styrene block copolymers, ethylene-anhydride copolymers, ethylene vinyl acetate copolymers, ethylene-acrylic acid copolymers, ethylene methacrylic acid copolymers, polyurethanes with a polydimethylsiloxane soft segment, ethylene vinyl alcohol copolymers with an ethylene content greater than 48 mole percent, and cross-linked silicone elastomers.

20. The composition of Claim 16, wherein said medical device is a radially expandable stent.

21. The composition of Claim 16, wherein said coating formed from said composition is used for reducing the rate of release of a therapeutic agent from said medical device.

22. The composition of Claim 16, wherein said polymer has a solubility parameter not greater than approximately 11.5 $(cal/cm^3)^{1/2}$.

23. The composition of Claim 16, wherein said polymer has a solubility parameter not greater than approximately 8.5 $(cal/cm^3)^{1/2}$.

24. An implantable medical device for carrying a therapeutic agent, comprising:

a first coating including a polymeric material, said polymeric material having a solubility parameter not greater that approximately 11.5 $(cal/cm^3)^{1/2}$, wherein said first coating reduces the rate of release of said agent.

25. The device of Claim 24, wherein said polymeric material is hydrophobic and said therapeutic agent is polar.

26. The device of Claim 24, wherein said polymeric material is non-polar and said therapeutic agent is polar.

27. The device of Claim 24, additionally comprising:

(a) a second polymeric coating formed on the surface of said medical device; and

(b) a third polymeric coating including an agent formed on said second polymeric coating and beneath said first polymeric coating,

wherein said first polymeric coating reduces the rate of release of said agent.

28. The device of Claim 24, additionally comprising:

(a) a second polymeric coating including an agent formed on the surface of said medical device and beneath said first polymeric coating, wherein said first polymeric coating reduces the rate of release of said agent.

29. The device of Claim 24, wherein said polymeric material is selected from a group of polytetrafluoroethylene, perfluoro elastomers, fluoropolymers, ethylene-tetrafluoroethylene copolymer, fluoroethylene-alkyl vinyl ether copolymer, polyhexafluoropropylene, low density linear polyethylenes having high molecular weights, ethylene-olefin copolymers, atactic polypropylene, polyisobutene, polybutylenes, styrene-ethylene-styrene block copolymers, styrene-butylene-styrene block copolymers, styrene-ethylene/butlene-styrene block copolymers, styrene-butadiene-styrene block copolymers, ethylene-anhydride copolymers, ethylene vinyl acetate copolymers, ethylene-acrylic acid copolymers, ethylene methacrylic acid copolymers, polyurethanes with a polydimethylsiloxane soft segment, ethylene vinyl alcohol copolymers with an ethylene content greater than 48 mole percent, and cross-linked silicone elastomers.

30. The device of Claim 24, wherein said implantable medical device is a radially expandable metallic stent.

31. The device of Claim 30, wherein said metallic stent includes cavities containing said agent for the release of said agent subsequent to the implantation of said stent in a mammalian lumen, and wherein said first polymeric coating is formed on the surface of said metallic stent and covering said cavities.

32. The device of Claim 24, wherein said polymeric material has an equilibrium water absorption factor of less than about 5% by weight under physiologic conditions.